

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 09/810,871 Confirmation No. 7472
 Applicant : Eldridge et al.
 Title : WAFER LEVEL INTERPOSER
 Filed : March 16, 2001
 TC/A.U. : 2833
 Examiner : Alexander Gilman
 Docket No. : P70-US

REMARKS/ARGUMENTS SUPPORTING APPLICANTS'
PRE-APPEAL BRIEF REQUEST FOR REVIEW

This paper is filed in response to the final Office Action of August 10, 2007 (herein "Final Office Action"). A Notice of Appeal and a Pre-Appeal Brief Request for Review are submitted concurrently herewith.

In the Final Office Action,¹ the Examiner rejected claims 58, 60-74 and 76-78, and 93-95 as being anticipated by Eldridge et al. (U.S. Patent No. 5,974,662, hereinafter Eldridge '662). The Examiner rejected claims 58, 76-78, and 81 as being anticipated by Parrish (U.S. Patent No. 6,215,320). The Examiner rejected claim 60 under Section 103(a) as being unpatentable over Eldridge '662 and Eldridge et al. (U.S. Patent No. 6,184,053, hereinafter Eldridge '053). The Examiner rejected claim 63 under Section 103(a) as being unpatentable over Eldridge '662 in view of Brozowski et al. (Electronic Packaging & Interconnection Handbook, McGraw Hill, 1997, Ch. 8). The Examiner rejected claim 63 under Section 103(a) as being unpatentable over Eldridge '662 and Sano (U.S. Patent No. 5,703,494). The Examiner rejected claim 101-103 under Section 103(a) as being unpatentable over Eldridge '662 in view of Sano.

Applicants respectfully submit that the Examiner clearly erred by rejecting claims 58, 93, and 95 as being anticipated by Eldridge '662 because the Examiner failed to meet the burden that Eldridge '662 teaches every element as set forth in the claims. Specifically, Applicants respectfully assert that the Examiner has not shown that the Eldridge '662 patent describes each

¹ The Final Office Action includes references to and rejections of cancelled claims.

and every element set forth in claims 58, 93, and 95, and accordingly, these claims are not properly anticipated. See MPEP 2131.

Independent claims 58, 93, and 95 recite “means for attaching said interposer to said contactor such that at least one of said contactor or said interposer is moveable between a first position and a second position while said interposer is attached to said contactor.” The claims further recite that “in said first position, said first plurality of contact elements do not contact said first terminals on said contactor, and in said second position, said first plurality of contact elements contact said first terminals on said contactor and said first plurality of contact elements and said second plurality of contact elements provide electrical connections from said first terminals on said contactor to a second plurality of terminals on said electronic device.”

In rejecting claims 58, 93, and 95 in view of Eldridge ‘662, the Examiner did not identify an element disclosed in Eldridge ‘662 for attaching the interposer 504 to the contactor 502 “such that at least one of said contactor or said interposer is moveable between a first position and a second position while said interposer is attached to said contactor.” In addition, the Examiner did not identify an element disclosed in Eldridge ‘662 “wherein in said first position, said first plurality of contact elements do not contact said first terminals on said contactor, and in said second position, said first plurality of contact elements contact said first terminals on said contactor and said first plurality of contact elements and said second plurality of contact elements provide electrical connections from said first terminals on said contactor to a second plurality of terminals on said electronic device.” More specifically, the Examiner did not identify an element disclosed in Eldridge ‘662 that corresponds to the first and second positions and to the electrical connections between contact elements and terminals recited in claims 58, 93, and 95. Applicants respectfully submit that the Examiner has thus failed to establish that Eldridge ‘662 describes each and every element set forth in claims 58, 93, and 95, and therefore, the Examiner clearly erred in rejecting claims 58, 93, and 95, and their dependent claims, as being anticipated under Section 102(b).

Claim 93 further recites “while said interposer is attached to said contactor, said interposer can be moved from said first position to said second position by application of forces to ones of said second plurality of contact elements.” The Examiner did not identify an element disclosed in Eldridge ‘662 that corresponds to this feature recited in claim 93. In the Office Action, page 3, the Examiner argued generally that the mechanism for planarizing the space transformer 506 corresponded to the features recited in claims 93-97. Applicants submit that the

Examiner has not shown that the planarizing mechanism discussed at Eldridge '662, column 32, lines 46-54 moves the interposer "from said first position to said second position by application of forces to ones of said second plurality of contact elements." Applicants respectfully submit that the Examiner has thus not shown that the Eldridge '662 patent describes each and every element set forth in claim 93 and its dependent claim 94, and therefore, the Examiner clearly erred in rejecting claim 93, and its dependent claim, as being anticipated under Section 102(b).

Claim 95 further recites "while said interposer is attached to said contactor, said interposer can be moved from said first position to said second position by pressing ones of said second plurality of terminals on said electronic device against said ones of second plurality of contact elements." Applicants submit that the Examiner has not shown that the planarizing mechanism of Eldridge '662, discussed above, moves the interposer "from said first position to said second position by pressing ones of said second plurality of terminals on said electronic device against said ones of second plurality of contact elements." Applicants respectfully submit that the Examiner has thus not shown that the Eldridge '662 patent describes each and every element set forth in claim 95, and therefore, the Examiner clearly erred in rejecting claim 95 as being anticipated under Section 102(b).

The Examiner's "Response to Arguments" at page 7 of the Final Office Action broadly interprets "means for attaching" to cover "any suitable mechanism for stacking these components and for ensuring such reliable pressure contacts," citing Eldridge '662, column 25, lines 26-28. The Examiner erred because the claims recite more than just "means for attaching." To properly reject the claims under Section 102, the Examiner must show that Eldridge discloses each and every feature recited in the rejected claims, including the entire function provided by the "means for attaching" element.

The Examiner at page 7 states: "The planarizers used by Parrish and Eldridge also can be interpreted as part of means for attaching since they work for spatial orientation of the contacts." The planarizers are understood to be screws 536, 538 of Eldridge '662 and planarizer 34 of Parrish. Providing "spatial orientation" does not mean the structures perform the functions recited in the "means for attaching" discussed above.

Applicants respectfully submit that that the Examiner has not shown that the Eldridge '662 patent describes each and every element set forth in claims 58, 93, 95, and therefore, the

Examiner clearly erred in rejecting these claims, and their dependent claims 60-74, 76-78, and 94 are not anticipated under Section 102(b).

The Examiner clearly erred by rejecting claim 58 as being anticipated by Parrish because Parrish fails to teach every element as set forth in the claim.

The Examiner equated Parrish's three point planarizer 34 with the "means for attaching" element of claim 58. Parrish does not, however, disclose that, while the interposer 36 is attached to the probe card 30, the planarizer 34 allows the probe card 30 or interposer 36 to move between a first position in which contact elements of the interposer do not contact the probe card 30 and a second position in which the contact elements of the interposer 36 contact the probe card 30. In other words, there is no teaching in Parrish that planarizer 34 allows, while the interposer 36 is attached to the probe card 30, the interposer 36 to move in and out of contact with the probe card 30. In fact, Parrish says very little about the planarizer 34. Parrish thus fails to disclose the "means for attaching" and, in particular fails to disclose that "while said interposer is attached to said contactor," "at least one of said contactor or said interposer is moveable between a first position" in which "said first plurality of contact elements do not contact said first terminals on said contactor" and "a second position in which "said first plurality of contact elements contact said first terminals on said contactor."

Moreover, logically, Parrish's probe card assembly 24 functions as follows. The pin interface 32 is biased toward the probe card 30. The tilt of the pin interface 32 can then be changed with respect to the probe card 30 by rotating the screws of the planarizer 34. As a screw of a planarizer 34 is advanced toward the pin interface 32, the screw pushes a portion of the pin interface 32 away from the probe card 30, and as a screw of a planarizer 34 is retracted away from the pin interface 32, the biasing force pushes a portion of the pin interface 32 toward the probe card 30. By using three such planarizers 34, the tilt of the pin interface 32 can be altered with respect to the probe card 30. Logically, Parrish's interposer 36 provides spring-like flexible electrical connections that maintain constant electrical contact with both the probe card 30 and the pin interface 32 as the tilt of the interface 32 is adjusted. In fact, the foregoing would appear to be essential to proper operation of Parrish's probe card assembly 24, whose purpose is to provide electrical connections from the probe card 30 to the probes on the bottom of the pin interface 32. Thus, Parrish's probe card assembly 24 would not operate properly or perform its intended function if the interposer 36 moved out of contact with the probe card 30. For this additional

reason, claim 58 is patentable over Parrish. Applicants respectfully submit that the Parrish patent fails to describe each and every element set forth in claim 58, and therefore, the Examiner clearly erred in rejecting claim 58, and its dependent claims 76-78 and 81, as being anticipated under Section 102(e).

Obviousness Rejections. The Examiner rejected claims 60, 63, and 101-103 under Section 103(a) as being unpatentable over Eldridge '662 combined with either Eldridge '053, Brozowski et al., Sano, or Pasiecznik. According to MPEP 2142, the prior art references when combined must teach or suggest all the claim limitations. In this case, the Examiner did not rely on Eldridge '053, Brozowski, Sano, nor Pasiecznik to teach or suggest the "means for attaching" and functions thereof recited in claim 58 and discussed above. These recited claim features are not taught by the primary reference, Eldridge '662. Therefore, the secondary references fail to disclose those features recited in claim 58 that are lacking in the primary reference. Accordingly, Applicants respectfully submit that the Examiner clearly erred in rejecting claims 60, 63, and 101-103 under Section 103(a).

Conclusion. Because the claims 58, 60-74, 76-78, 81, and 93-97 are not properly anticipated under Sections 102(b) and 102(e) according to established legal standards of anticipation, and because claims 60, 63, and 101-103 are not properly rejected under 35 U.S.C. § 103(a), the Examiner clearly erred in rejecting claims 58, 60-74, 76-78, 81, 93-97, and 101-103. Applicants respectfully request withdrawal of the rejections under Sections 102(b), 102(e), and 103(a) and allowance of all pending claims.

Respectfully submitted,

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Dated: November 9, 2007

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